DOCUMENT RESUME

ED 138 469 SE 022 489

TITLE Criteria for Judging Research Reports and Proposals.
INSTITUTION National Council of Teachers of Mathematics, Inc., Reston, Va.
PUB DATE Aug 76
NOTE 5p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Check Lists; Educational Research; *Evaluation; *Guidelines; Higher Education; *Mathematics Education; Project Applications; *Research Proposals; *Research Reviews (Publications)
IDENTIFIERS National Council of Teachers of Mathematics

ABSTRACT

This outline is intended for use as a checklist for evaluating research proposals and reports. Criteria are listed for evaluating each of the following areas: research problems, design and procedures, analysis and conclusions, and personnel and facilities. Additional criteria are given for evaluating empirical experimental studies, clinical observational studies, clinical teaching experiments, and organizational studies. Nine reasons for proposal rejection are listed. (DT)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

NATIONAL COUNCIL OF
Teachers of Mathematics
1906 Association Drive, Reston, Virginia 22091 ■ (703) 620-9840

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED138469

CRITERIA FOR JUDGING RESEARCH REPORTS AND PROPOSALS

The following criteria can be used as a checklist for evaluating research proposals and reports. It was developed by the Research Advisory Committee in response to a specific charge to that committee. Terry Coburn wrote the final version. Various documents were used as sources for the final draft. One of these documents was of particular importance because it contained reasons proposals were rejected by the U.S. Office of Education. Nine of these reasons are listed at the end of the criteria.

I. General Criteria

A. The Problem

1. The problem is clearly stated, and the rationale is logical.

a. The purpose is concisely stated.
b. Objectives are specified.
c. Procedures are specified.
d. Variables are identified, and their relationship to theory or observation is explained. (If the variables are new, then evidence from a pilot study is presented.)
e. Research hypotheses are concise.
f. Research hypotheses are logically developed from some theory or related problem, and they are clearly plausible.

2. The problem is significant.

a. Its relationship to previous research has been well established.
b. The hypothesized research findings should be generalizable beyond the sample.
c. The study will make a contribution to the advancement of knowledge.
d. The results will contribute to the solution of some practical or theoretical problem.

B. Design and Procedures

1. The design of the study is appropriate to the solution of the problem.

a. The research design is fully described.
b. Assumptions are clearly stated.
c. Delimitations are noted.
d. The population and sample are described (geographical limits, time period covered, sociological description, sampling units).
e. The sampling method is appropriate and practical.

SE 022 489

f. Controls for sources of error are described and are appropriate (e.g., sampling error, nonresponse, interviewer bias, response error, response set, experimenter bias, teacher effect, control of variables, extraneous factors).

2. The relationship of the procedures to the implementation of the design is appropriate.

a. The data-gathering methods are clearly described and meet the requirements of the problem.
b. The obtained sample is of a sufficient size and is representative of the defined population.
c. The measuring instruments are appropriate.
d. The validity and reliability of the evidence are established, or a procedure for establishing the validity and reliability of the evidence is described.

C. Analysis and Conclusions (for research reports)

1. The analysis of the data is appropriate.

a. The results of the analysis are clearly presented.
b. The analysis methods are valid, appropriate, and properly applied.
c. The assumptions behind the statistical tests are stated, and the relationship of the test to the design is appropriate.

2. The conclusions are reasonable.

a. The conclusions are clearly stated.
b. The conclusions are substantiated by the evidence presented.
c. Interpretations and implications are impartial and scientific.
d. A comprehensive discussion of the qualifications is given (methodological problems and errors, alternative explanations, other limitations).

3. The research is adequately reported.

a. The report is logically organized and clearly written.
b. Grammar and mechanics are adequate.

D. Personnel and Facilities (for funding research proposals)

1. The qualifications of the investigator to conduct this study are adequate.

a. Competence in the techniques involved is demonstrated.
b. The investigator has adequate experience and timing for this research.

c. The investigator is familiar with the pertinent literature.
d. Adequate time commitments are indicated.

2. The facilities for this study are adequate.

a. Requirements for equipment or personnel are realistic.
b. The instructional setting is favorable (if applicable).

3. The relationship between the costs of the study and the proposed activities is appropriate.

a. Estimates of anticipated costs are reasonable.
b. The number of personnel assigned to the project is reasonable.
c. The relationship between the probable outcome in terms of its impact and the investment required is favorable.

II. Additional Criteria for Specific Categories of Studies

A. Empirical--Experimental Studies

1. The operationalization of the variables is appropriate.
2. The instrumentation used to measure the variables is fully described and is appropriate.
3. Treatments are fully documented and are replicable.

B. Clinical--Observational Studies

1. The phenomena under investigation are clearly identified.
2. Interviews and observation guidelines are related to the key elements of the study.
3. The methodology for recording the interviews is appropriate.

C Clinical--Teaching Experiments

1. The phenomena under investigation are clearly identified.
2. Plans for the observation are detailed and related to the key elements of the study.

D. Organizational Studies

1. The organizational pattern is clearly defined.
2. The commitment of the institutions involved is favorable.
3. The researcher gives evidence of commitment to study the effects of the alternative organizational pattern in an evaluative manner.

SOME REASONS FOR REJECTION

Class I: The Problem

1. The problem is of insufficient importance or is unlikely to produce any new or useful information.

2. The proposed research is based on a hypothesis that rests on insufficient evidence, is doubtful, or is unsound.

3. The problem is more complex than the investigator appears to realize.

Class II: The Approach

1. The proposal tests, methods, or scientific procedures are unsuited to the stated objectives.

2. The description of the approach is too nebulous, diffuse, and lacking in clarity to permit adequate evaluation.

3. The overall design of the study has not been carefully thought out.

Class III: The Personnel

1. The investigator does not have adequate experience or training, or both, for this research.

2. The investigator appears to be unfamiliar with pertinent literature or methods, or both.

3. The investigator's previously published work in this field does not inspire confidence.